DEPARTMENT OF THE ARMY
Corps of Engineers, Omaha District
215 North 17th Street
Omaha, Nebraska 68102-4978

DM 25-1-76

CEMRO-IM

Memorandum
No. 25-1-76

30 August 1996

Information Management
WORLD WIDE WEB USAGE AND DEVELOPMENT

1. Purpose. The Internet/World Wide Web has evolved into a tool which can facilitate the distribution of volumes of information to a global forum. The Corps of Engineers encourages maximum use of the Internet for mission-related purposes. This directive is intended to enable some standardization for the Omaha District's World Wide Web(WWW)home pages, without restricting the content, usability or creativity of the individual divisions/offices within the Omaha District. This directive also contains some basic guidelines and Hypertext Markup Language (HTML) samples that will give assistance for WWW development within the Omaha District.

2. Applicability. This directive applies to all home pages and World Wide Web access initiated by the Omaha District and its subordinate offices.

3. References.

a. FAR 3.104-3 Federal Acquistion Regulation

b. AR 25-55 The Department of the Army Freedom of Information Act Program

c. Internet Use in the Corps of Engineers, 25 Jul 95, Gregg C. Hoge.

d. AR 360-5, Army Public Affairs, Public Information.

e. AR 380-5, Department of the Army Information Security.

f. AR 380-19, Information Systems Security.

g. AR 380-10, Technology Transfer, Disclosure of Information and Contacts with Foreign Representatives.

h. ER 380-1-18, Technology Transfer, Disclosure of Information and Contacts with Foreign Representatives.

i. EP 25-1-97, Internet Implementing Procedures.

j. WWW Addresses.

(1) Guide to Cyberspace 6.1: Index/Glossary, http://www.eit.com:80/Web/www.guide/guide.15.html

(2) Web Commerce Com., Glossary Of Web Terminology, http://Webcommerce.com/

(3) The EightMinutePrimer, http://Web66.coled.umn.edu/Cookbook/HTML/MinutePrimer.html

(4) A Beginner's Guide to HTML, http://www.bio.uts.edu.au/www/guides/html-primer.html

(5) A Beginner's Guide to HTML, http://mist.npl.washington.edu:80/doc/html-primer.html

(6) The Web Arthur's Tool Kit, http://www.wrmdesign.com/nettools/research/watk1.html

4. Responsibilities.

a. Information Management Office (IMO) will:

(1) Develop Internet-related policy.

(2) Oversee Internet program implementation.

(3) Appoint and maintain a Omaha District Internet Center of Expertise.

(4) Conduct an annual program review to implement improvements.

(5) Sign requisitions for home page development when received from individual divisions requesting a presence on the WWW. (See Appendix E, Forms.)

(6) Continue to monitor the pages and information available and, when in question, coordinate additional approval from Public Affairs and/or Executive Office.

(7) Recommend and install any hardware and software required to establish employee connectivity to the Internet.

(8) Maintain and/or establish Internet servers and software for servers as appropriate.

(9) Assure security for computers with Internet access (See Appendix B, Information Security.)

(10) Appoint a Webmaster and provide name and address to USACE (INet).

b. Commander will:

(1) Promote business use of the Internet, including promoting Internet connectivity to contractors, vendors, architectural engineering firms, customers, and the general public.

(2) Ensure that established procedures are followed for publication of both technical and non-technical information, and that proper coordination and review take place before the information is published.

(3) Ensure that appropriate levels of training are provided to all personnel involved in information dissemination or retrieval using the Internet. (Additional training and technical assistance can be requested from the Webmaster.)

(4) Ensure that appropriate levels of funding are provided for use of the Internet.

c. Office of Counsel will:

(1) Provide as necessary legal advice, guidance, and opinion on regarding internet-related functions or actions taken by the Omaha District.

(2) Provide as necessary legal advice, guidance, and opinion on issues of improper or unauthorized release of information; or releases of information which may jeopardize or weaken the Government's position or defense in contract claims, appeals, or litigation.

(3) Serve as legal advisor and Initial Denial Authority (IDA) on Freedom of Information Act Program issues as they relate to the Internet.

d. Security and Law Enforcement (Security Manager) will:

(1) Provide security oversight to Omaha District information as it relates to the Internet.

(2) Formulate Internet-related information security policy and manage the information security program through the Information Systems Security Office (ISSO).

(3) Manage the disclosure of information to foreign nationals within USACE as it relates to the Internet.

e. Managers (at all levels) will:

(1) Encourage employees to use Internet resources to improve productivity. Examples of this kind of usage would be in order to: improve the flow of unclassified information for public viewing, provide useful information to Corps of Engineers and other interested individuals, and provide contractual information to prospective bidders.

(2) Ensure that all WWW use and development time is appropriate. Inappropriate use of Army-owned hardware, software, and communications are violations of fraud, waste, and abuse regulations.

f. Public Affairs will:

(1) Ensure that all general interest information posted to a Web page complies with guidance in EP 25-1-97.

(2) Provide oversight, inspection and review of all Web pages to ensure that all general interest information posted complies with both HQUSACE and local policies.

g. Internet Server Administrator will be appointed as necessary to:

(1) Ensure security for their Internet server(s) to minimize the risk of penetration of Corps of Engineers Application Program version 1a (CEAP-1A) network by unauthorized intruders in accordance with CEAP-1A security firewall architecture.

(2) Load new Web pages and links to higher-level pages. Load files and maintain the File Transfer Protocol (FTP) archive area.

(3) Maintain Hypertext Transfer Protocol (HTTP), FTP, Simple Mail Transfer Protocol (SMTP) and gopher support servers as appropriate.

(4) Maintain and review activity logs to monitor server usage and attempted security breaches. If utilization is low, may propose to the pagemaster that the page be deleted.

h. Webmaster will:

(1) Sponsor the development of training resources for an on-line "Internet Primer" covering topics such as design of WWW pages, provide information on conferences pertaining to government Internet development; offer technical assistance as requested.

(2) Ensure that all home pages follow the standard image for Corps home pages as discussed in Engineer Pamphlet 25-1-97, Internet Implementing Procedures, paragraph 6c, Minimum Consistency Requirements for Web pages.

(3) Load new WWW pages and links to division/office home pages as necessary.

(4) Monitor and investigate security issues.

(5) Monitor page logs to determine the amount of page access. Low usage may determine cause for deletions. Overly high usage may require reconfigurement of hardware/software available.

(6) Research current and new uses/tools of Internet capability, and keep developing divisions/offices informed.

(7) Ensure that new pages have the proper approvals before posting.

i. Pagemasters will:

(1) Be responsible for the accuracy and currency of their

information and will develop a process to ensure timely updates and removal. (See maintaining Web pages in appendix A.)

(2) Ensure compliance with Privacy Act and copyright requirements.

(3) Safeguard government data and resources. Individuals should be aware that utilization of government resources for personal benefit or profit is illegal.

(4) Follow the approval process according to this directive.

(5) Prepare new information for publication, such as scanning photos, and preparing text. This data will be prepared in formats appropriate for the media of publication. (See Web page image guidelines in appendix A.)

(6) Appropriately use Army-owned hardware, software, and communications in accordance with fraud, waste, and abuse regulations.

(7) Report known, suspected or attempted intrusions by unauthorized users or by authorized users attempting to gain unauthorized access to the appropriate Security and Law Enforcement Office or Army Counter Intelligence Office within 24 hours of detection.

5. Initial procedure for development.

a. Like other publicly released material, all information placed on the Web must have approval from appropriate release authority. The WWW server is presumed accessible by the public. Under no circumstances should the following information be made accessible:

(1) Classified information.
(2) Privacy Act information.
(3) For Official Use Only information.

(4) Source Selection Information (FAR 3.104-3).

b. The procedure to be followed in developing a Web page for any division/office is:

(1) The purpose of the MRO Form 1875 is to advise IMO/PAO how the requesting division/office intends to use the Internet. Signing of MRO Form 1875 by the requesting division/office establishes that the requesting division/office will develop pages in accordance with the policies of this Internet directive. The requesting division/office will also state on MRO Form 1975 who will have responsibility for the development and maintenance of this page. The person within a division/office responsible for developing and maintaining the page is referred to as the "pagemaster".

(2) A signed return of MRO Form 1875 by IMO/PAO gives the requesting division/office permission to begin development of their WWW pages.

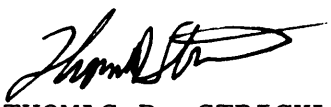
(3) After completion of the WWW pages, the pagemaster will have the chief of their division/office review the WWW page, and sign MRO Form 1876 (appendix E). This form will then be given to the Webmaster who will link the developed page(s) to WWW access. Evaluation of the pages by the chief of the requesting division/office should ensure that the pages present a consistent, professional and recognizable corporate image and that the information being publicized is done so in an efficient and organized manner. (See review and maintenance of Web pages in appendix A.)

(4) Maintenance of the pages will be performed by the pagemaster. (See review and maintenance of Web pages in appendix A.)

(5) For Internet hardware/software needs, such as TCP/IP or Netscape, the individual division/office will submit MRO Form 1848, Justification Acquisition Request(JAR), requests to IMO.

(6) Technical assistance for page development can be requested from the Webmaster.

FOR THE COMMANDER:



THOMAS D. STRICKLIN,
LTC, ENG
Deputy Commander

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DISTRIBUTION:
D
District Library

APPENDIX A
Web Page Guidelines

1. Web Page Layout Guidelines. Identification and consistency in presenting government information is important for both the division and the user. "Layout" looks at how each page is organized. The layout guidelines are provided in order to present a uniform description consisting of a few basic elements to be presented on each page. The single most important factor of any layout scheme is CONSISTENCY. The layout of the Web page consists of at least the following HyperText Markup Language (HTML)tags:

```
<HTML>
<HEAD>
<TITLE>....</TITLE>
</HEAD>
<BODY>
</BODY>
</HTML>
```

a. The <HTML> </HTML> tag marks the beginning and ending of the document. The <HEAD></HEAD> tag identifies everything falling between them as part of the directive head. The <BODY> and </BODY> tags identifies everything between them as part of the document.

b. The <HEAD>...</HEAD> head tags contain special information about the page such as the document's title and owner.

c. One of the most important tags found in the head is the <TITLE>...</TITLE> tag. The <TITLE></TITLE> tags fall within the <HEAD></HEAD> tags. The <TITLE> tag is required for each core page. There may only be one title in any page. The title should identify the content of the page in a fairly wide context. The title is not part of the text of the page, but will appear as the title across the top of the browser, and be referenced in searches. The title should ideally be less than 64 characters in length. Although there is no limit on the length of a title (as it may be automatically generated from other data), pagemasters

are warned that if the title is too long, it may be truncated automatically by the system it is running on. Some consideration should be given to what constitutes an appropriate or an inappropriate title. Appropriate titles are as short as possible, while being descriptive of what the page is about. "CEMRO Regulatory Branch" or "Surveys and Maps" are examples of appropriate titles. Inappropriate titles are those which are meaningful only within context such as "Introduction", or titles which are too long.

d. Body. The visual page begins with the <BODY></BODY> tags of the page. Two types of pages are the "Omaha District's home page" and the "division/office home page". The Omaha District's home page is the page which will link upward to the Headquarters home page (USACE Inet) and vice versa. The office/division home page is an Internet page containing information pertaining to an office(s), individual(s), project(s), system(s), etc. Within the hierarchical WWW structure, the functional home pages are pages that are typically linked back to other functional home pages or the Omaha District's home page. Following are the body requirements for these home pages.

(1) Omaha District home page and all functional home pages are required to have a standard corporate header developed by HQUSACE.

(2) Omaha District home page must have a hotlink USACE communication mark that refers back to USACE INet.

(3) It is optional for the Omaha District home page to have an image which depicts or represents the Omaha District's organization (historical, cultural, geographical, technological, mission etc.). The image provided will not be a competing symbol(logos, coat of arms, shields, etc.).

(4) Category links. At a minimum, the first three links of the Omaha District home page must be present, and must be named: NEWS, INFORMATION, and ORGANIZATION.

(5) Crisscross reference links. Crisscross reference links, links which link to other Corps' pages outside of the Omaha District, are discouraged because the USACE INet will have links at all other organization home pages.

(6) Dead links. Dead links inevitably occur on WWW servers as pages are modified, moved or deleted over time. Links for the Omaha District home page must be maintained by the Webmaster, and by the pagemasters for all division/office home pages.

(7) Heading Levels. If heading levels <H1>, <H2> ...<H6> are used to indicate major topics, then the same degree of heading level indicators should be used on ALL pages.

(8) When including graphics, browsers support in-line images in xbm, gif and jpeg (not all browsers currently support jpeg) format. Use .gif images whenever possible. Use graphics sparingly as they will slow display of pages. Provide an alternative for text-based browsers using the ALT option.(See Web page image guidelines in this appendix.)

(9) Explicit link. Make linkable text very explicit to the user. Avoid using "by clicking here" types of links. This makes the user unsure of what he/she is clicking for. Instead make sure the text you want the user to click on is actually some kind of title. For example, "information about wild life regulations" is more explicit than "click here."

(10) The status of your information should be made known. Some information is definitive; some pages have incomplete information. There are times when "some" information is better than "none." It is appropriate to put "incomplete" information on the Web, however, you need to indicate to the user that the work is incomplete. You might put an "under construction" graphic or sign to indicate an incomplete status.

(11) All pages must note any disclaimers, copyright notices, etc. which law or convention require. Copyrighted

material, including software, text and visual imagery, can not be distributed on the Internet without approval from the owner of the copyright. The same copyright protections that apply to other materials and media also apply to materials published on the Internet.

(12) Spellchecking and proofreading are required for all directives going onto the Web. Publishing information on the Web should be treated just like a published journal. Make sure that the content is accurate. The reader's impression will be determined by how professional the directive looks.

(13) Tables. Tables, like images, can be extremely effective ways to present information. However, they can hamper access to information by visually impaired individuals or those with character-only browsers. Tables should be used when it significantly enhances the effectiveness of information presentation. Tables must be accompanied by text links which provide access to the complete set of options for users who can not use the tables.

e. Footer.

(1) All division/office home pages will have a link back to the Omaha District's home page.

(2) The bottom of the Omaha District's home page or division/office home page will contain the date that the district home page was last updated, the Webmaster/pagemaster name, office symbol, E-mail address, and phone number which can be used to contact the Webmaster/pagemaster.

f. Testing of home pages. Pages should be read and reviewed by others in the division(s)/office(s) before being offered for publication. Testing takes time. The decision of how much testing you do is based on the quality of the page you wish to provide. The HTML of your directive itself needs to be tested to ensure proper display of the page. Although the Corps of Engineers is

using the Netscape browsers, there are many different browsers, such as Mosaic and NCSA. If the Web page is designed with a single browser in mind the pages might run the risk of becoming obsolete when a new browser is introduced. Items that should be checked are:

basic structure.
unknown tags and tag attributes.
context checks (where a tag must appear within a certain element).
overlapped tags.
make sure a TITLE is in the HEAD element.
IMG tags should have ALT text.
illegally nested tags.
mismatched tags (e.g., <H1> ... </H2>).
unclosed tags (e.g., <H1> ...).
tags which should only appear once.
obsolete tags.
odd number of quotes in tag.
order of headings.
potentially unclosed tags.
inappropriate link names such as "click here."
existence of local anchor targets.

2. Web page style guidelines. Style of a Web page is concerned with the overall organization of the Web pages making up the WWW directive. Being conscientious of style will help the reader obtain information from the Web page more quickly, which in turn will make the Web page more usable and appealing. The following is concerned with the style of your Web page.

a. Use different size Heading tags to draw the reader's attention to the sections that are most important to them. Currently HTML supports six different size headers with <H1> being the largest, and <H6> the smallest. Be consistent as to what these sizes represent.

b. Use link lists for summarizing related items. A link list is a either an ordered <OL> or an unordered <UL> list, whose contents link to another page. Using links to list topic areas is an efficient way for readers to obtain the information they are looking for.

c. Pages need to be as short as possible. Write concise, purposeful, and interesting text. Use paragraphs, headers, and links to break up large blocks of text.

d. Not all users will be using a browser, some will have text only interfaces such as lynx. If your page will be readable to them, remember to offer a text-only version such as specifying an ALT for images. (See Web page image guidelines in this appendix.)

e. Construct pages that load quickly and are easy to navigate. Almost always a slow loading page is caused by the type of graphics or background used. To avoid slow loading pages, refer to Web page image guidelines in this appendix.

f. Avoid organizing material meaningful only to Corps employees. Other schemes of organization, such as major mission areas (navigation, flood control, military construction, etc.) or geographical boundaries should be used. If geographical organization is used, state or regional boundaries should be used in lieu of Corps civil works boundaries which are not generally meaningful to the public. Clickable hot-spot maps are one good way to link users to pertinent information. Other categories such as "Employment with the Corps" or "Scientific Information" may also be appropriate at certain sites. Division/offices are encouraged to be creative in their approaches while keeping corporate consistency and understandability.

g. Special design consideration to enhance communication for individuals with impairments. Web pages will be designed so that there is a text equivalent for all information contained in

graphics. For example, access to the complete set of options for users who cannot use the image maps because of disabilities.

h. Communication considerations. Pages will be designed for efficient transfer over low-bandwidth connections which are still prevalent in schools, homes, and libraries. Pages should be tested using lynx or another character-only browser.

3. Web page image guidelines. It would be ideal to develop Web pages that would always be *instantly* retrieved and *predictably* displayed. At the current time this is not totally possible because different browsers display HTML tags in different ways. Also, the speed at which graphics is loaded will differ depending on the speed of network connections. Some users will be working with slow network connections. Guidelines are provided to improve the performance of pages containing images.

a. Reduce size and number of graphics. Use graphics, but be aware that there is a performance penalty for each graphic that you use.

b. If using icons, be consistent in their usage. Icons serve a useful purpose to clearly identify links and to convey information about the link's function, however, each icon is a graphic and takes time to load. Many browsers cache graphics so that if you use a small set of icons throughout your system of Web directives, then the penalty occurs only on the first page with faster loads for subsequent pages.

c. It is recommended to interlace GIF images. Some browsers, such as Netscape, display a crude representation of the image quickly before filling in the details, speeding performance. To take advantage of this feature you can interlace your GIF files. This can be done using the *giftools* program available at http://www.home pages.com/tools/ or other "freeware" or "shareware" programs.

d. Limit size and number of inline graphics by using cropped thumbnails linked to full size images. Keep graphics 20K or less, which will help provide for a quick display of the page. For graphics which must go over this, display a thumbnail version. Using a simple graphics editor program, you can easily resize images of various format. Reduce a 100K graphic to one sixth it's screen size, and the new size is only 5k. This smaller version is called a *thumbnail*. Linking thumbnails to a larger image requires combining inline images and anchor tags.

e. For all binary/graphic links, warn user of file size and format. If the graphic is something you will want the user to download specify both the file size and the format such as 250kB, *.mov".

4. Review and maintenance of Web pages. Maintenance includes verifying HTML, checking link integrity, monitoring the host computer, keeping data current, and analysis of usage log data. Provisions and procedures must be made for those pages which will want to feature large volumes of data, continuously changing content, and complex forms. Hypertext links can easily become invalid as sites evolve, server content is changed, or servers crash. A small typographical error in a link's URL can render the link useless until fixed. Thus, both the Webmaster and Pagemasters must be concerned with finding and fixing the variety of possible HTML and link-related errors. Review of Webpages takes into consideration the "image" of the information being presented. Does the page present a consistent, professional and recognizable corporate identification? Is the information accurate and reliable? This section gives direction for some procedures to be followed in regards to maintaining both the home pages, and all other Corps'o pages.

a. The Webmaster is responsible for the maintenance of the Omaha District's home page which includes:

(1) Maintaining links to other home pages.

(2) Running and monitoring logs of all pages to determine usage of pages, and security issues.

(3) Referring to IMO questionable pages, pages which are not used, outdated, inaccurate, or do not present a Corps image.

b. Pagemasters will be responsible for maintaining their functional pages. This will include:

(1) Updating and maintaining the information they put on the Web, especially if their page contains dynamic interfaces.

(2) Updating the date at the bottom of the page whenever they perform maintenance.

(3) Reading and replying to the comments that are made to their page through the "mail to" option.

(4) Maintaining and keeping accurate all links contained on their pages.

5. Web page development tools. For those just beginning Web development, there are excellent HTML primers available for learning HTML. They are located at the following Universal Resource Locator (URL):

The Eight Minute Primer available at:
http://Web66.coled.umn.edu/Cookbook/HTML/MinutePrimer.html

A Beginner's Guide to HTML available at
http://www.bio.uts.edu.au/www/guides/html-primer.html
http://mist.npl.washington.edu:80/doc/html-primer.html

Numerous software tools are available to help Webmasters/pagemasters develop attractive and professional materials for the Internet. The tools basically fall under the following sections: Web Viewers, Web Editors, Communication Tools, Server Tools, and Internet Utilities. At the current time, many of these tools and programs mentioned are available at :

http//www.atlantic.net/~bombadil/nuthin/yahoo.html.
Some of the software tools are freeware and may be used without restriction, some tools are shareware and need to be registered after a short period, and some need to be purchased from the vendor. (See Appropriate Use of the Web, appendix C).
The Webmaster will post helpful information for your Web development at the URL:
http://www.mro.usace.army.mil:85/html/mronet.html.

a. Web browsers. Web browsers are used to view pages on the World Wide Web. Graphic browsers, such as Mosaic, Netscape, and Netcruiser, allow the user to view multimedia information contained in HTML formatted directives. Text-based browsers, such as Lynx, are designed to read the text portion of HTML directives but do not display graphics or other forms of multimedia information. The different browsers found at the above URL are: HotJava, I-View, Lynx, Microsoft Explorer, NCSA Mosaic, Netcruiser and Netscape Navigator. Netscape is the site licensed browser for the Omaha District.

(1) Document viewers. Document viewers are used to view directives on the WWW that do not comply with the HTML format. Many software companies freely distribute document viewers they designed and developed to read file formats supported by their other programs. Some of these viewers are: Acrobat Reader, Ghostscript Viewer and Word Viewer.

(2) Image viewers. Image viewers are helper applications that attach to Web browsers so they can read additional graphic file formats. These viewers are also graphic editors: ACDsees, Graphic Workshop, LView PRo, Netscape Navigator 2.0 image viewing VuePrint Viewer and World Viewer.

(3) Audio players. Audio players are helper applications that can be attached to a Web browser to read and play audio files. Available browsers: MOD4WIN, Netscape Navigator 2.0 audio, PC Speaker Driver, RealAudio Player and WHAM.

(4) Video players. Video players are helper applications that can be attached to a Web browser to read and play video files. Video players available: Wplany, Graphic Workshop, MPEGPlay, Netscape Navigator 2.0 video, QuickTime for Windows, StreamWorks Client, Uniflix, Video for Windows, VMPEG Lite and VuePrint Player.

(5) Virtual Reality Modeling Language (VRML) browsers. VRML takes HTML one step beyond the directive-centric approach by allowing users to view and search three-dimensional landscapes and models ("worlds"). These worlds will be able to house huge stores of information, including HTML, Gopher, and FTP sites, as well as supporting interactive processing of data. Examples: AmberGL browsers, Virtus Player, VRML+ browsers, VRWeb, WebFX WebSpace, WebView and WorldView.

b. Web editors. Web editors are used to prepare and edit hypermedia directives for the Web. HTML editors are used to author the hypertext portion of hypermedia directives and for structuring the multimedia portions of those directives. Various media editors are used to prepare and format the graphic, audio, and video portions of those directives.

(1) HTML Editors. HTML editors are used to create HTML formatted pages that can be read by a Web browser. They include: HotDog, HotDog Pro, HotMetal, HotMetal Pro, HTML Writer, Internet Assistant for Word, Internet Publisher for Word Perfect, NaviPress, Netscape Navigator Gold and WebAuthor.

(2) Table editors. Table editors are used to create and edit HTML tables. Program: 0XL-2-HTML.

(3) Form editors. Form editors allow you to construct interactive HTML forms that can be processed without having to use CGI scripts. Programs available: Net.Forms, WebForms Professional.

(4) Image editors. Image editors are used to read, view, and edit various types of graphics files. They include:

GIF Construction Set, Graphic Workshop, LView Pro, Paint Shop Pro and VuePrint Editor.

(5) Image map editors. Image map files are a feature of both NCSA and CERN httpd servers, they allow you to turn a GIF into a clickable map by designating polygons, circles and rectangles within the GIF and specifying a URL for each to link to. Unfortunately, creating good image maps by hand is a lot of work. Image map editors are designed to make this process easy. The only one mentioned at this time is: Map THIS!.

(6) Audio editors. Audio editors allow you to create and edit audio files. These include: RealAudio Studio and WHAM.

(7) Video editors. Video editors allow you to create and edit video file. Example described is: Premiere.

(8) VMRL editors. VRML editors allow you to create and edit three-dimensional environments that can be viewed by a VRML browser on the Web. Most editors will allow the user to construct the three-dimensional geometry defining the virtual environment, attach textures to surfaces, and assign URL addresses to objects. Examples of these include: AmberGL, Cyberview-3D, home Space Builder, Open Inventor, Reality Lab, Spinner, WalkThrough Pro, VRCreator, WorldBuilder and worldSpace.

c. Communication tools. Communication tools are used to send and receive information to and from the user's computer and Web servers.

(1) Telnet. Telnet programs allow the user to logon to remote computers anywhere in the world. Telnet connections can be direct dial connections or via a Windows Sockets connection. Many of the programs allow you to connect to the remote computer via the Web. Examples of these programs: CommNet and Ewan.

(2) E-mail clients. E-mail clients are typically the winsock applications used most often. They are used to send,

receive, and organize E-mail. A good E-mail program will allow you to send and receive, sort, and spellcheck mail, and create and maintain address books. Examples of these: E-Mail Connection, Eudora Light, Eudora Pro, Netscape Email and Pegasus Mail.

(3) News readers. News readers enable users to read and post messages to newsgroups contained within the Usenet network. Agent, Free Agent, Netscape News Reader, News Xpress and WinVN.

(4) FTP clients. File Transfer Protocol (FTP) clients are used to upload and download files over the Internet. While most Web browsers offer FTP access for downloading files, few allow the user to upload files. FTP Programs: CuteFTP, Netscape FTP and WS-FTP.

(5) Talk clients. Talk clients allow two users to text-talk to each other on the Internet. Using a talk program, users can type messages to each other in real time. Example program: WinTalkPro.

(6) Chat clients. Internet Relay Chat (IRC), or "chat clients," allow users to chat in real time using text-based conversation. Chat clients are used to connect the user with an IRC server which, in turn, connects to other IRC servers around the world. Users may thus chat with other users from all around the world. Some programs to facilitate this are: Global Chat, mirc, Netscape Chat, PowWow, Virtual Places Client, Worlds Chat and WS-IRC.

(7) Telephone clients. Telephone clients are used to actually talk to each other "voice-to-voice" while using a chat client. Users may thus talk long distance for the price of connecting to their Internet provider. Programs which enable this capability are: Internet Phone, Internet Voice Chat and Web Phone.

(8) Video Conferencing. Video conferencing allows two computer users, at separate locations, to visually interact with each other regarding a shared directive in real time. The

interaction is videoed at each location and viewed at each of the other locations. Programs which allow you to do this are: CU-SeeMe, QuickTime VR, Simplicity, WS-IRC Video, MOO Clients, MudWin and MUTT Lite WinWorlds.

d. Server tools. Server tools are tools which aid the server in performing several of its tasks.

(1) Scripting Tools. Scripts can be written to manage the transmission and interaction of data and procedures between an HTTP Web server and a Web browser. The Common Gateway Interface (CGI) is the specification for the application programming interface (API) used for this type of communication. Any language available to the server can be used to write CGI scripts. The most common language used on UNIX systems is Perl. Other languages are beginning to appear for processing special types of applications. The scripting tools are : Java, Netscape Scripting Language and Perl.

(2) Search engines. Search engines are programs designed to index and search through data stored on the Internet. Search engines can be set up to search information on a local server or the entire Internet. Some search programs are: Lycos and SWISH.

(3) Form servers. Most HTML editors allow the Web author to create forms inside HTML directives. Users viewing the HTML directive with their browser can fill out the form and have the information submitted to the Web server. When this occurs, the server must know what to do with the information. CGI scripts are typically written to tell the server how to process the information. This usually involves some form of "custom" programming, which is often beyond the skills of the Web author. Form servers provide a generic set of processing actions that the Web author can invoke from the HTML directive containing the form, thus eliminating the need for custom programming. Programs facilitating this are: net and Forms Server.

(4) Message servers. Message servers add discussion forums to the Web. They can be used to set up discussion forums and other BBS types of discussion services that can be accessed by users via their Web browser. Some of these programs are: net.Thread and WEB/BBS.

(5) File compression utilities. File compression utilities are designed to compress and uncompress files. Compressed files require less storage space and less time to transmit over the Internet. Examples of these programs are: GNUZip, PKZip and WinZip.

e. Virus scanners. A real danger of downloading programs from the Web is the chance to also download a virus which can destroy files on the entire network. To protect your computer and others, it is mandatory to have a virus control program on your computer. Some of these examples are: F-Prot and VirusScan.

APPENDIX B
Information Security

1. Security. The issue of security within a government environment is of great importance. If the Internet is to achieve its full potential, the users must have confidence in the security procedures taken. There are numerous examples of the disasters which can happen if security measures are not in place, such as the Internet Worm in November of 1988 in which the data of some 60,000 machines were damaged by a Cornell University student. Security safeguards will differ depending on whether the division/office is providing internal access to the Internet, or external access.

a. Security procedures implemented will be in compliance with AR 380-19, AR 380-10 and ER 380-1-18. The Internet gateway provides accessibility to mission-related users as well as vulnerability to knowledgeable intruders who could compromise computer systems and network equipment within the CEAP-1A network.

b. The Internet Server Administrator will ensure security for their Internet server(s) to minimize the risk of penetration of CEAP-1A network by unauthorized intruders in accordance with CEAP-1A security firewall architecture.

c. Webmasters will ensure that new pages have the proper approvals before posting information.

d. Those who are responsible for the content of information (Webmasters, pagemasters, division/office managers) as indicated by the origination of the page being served will ensure that the content is appropriate information to be served, depending on whether it is being served to the public or internal usage.

(1) Information that is ABSOLUTELY NOT appropriate to place on the Internet:

(a) Information that would adversely affect national security or threaten the privacy or personal safety of members of the Armed Forces and civilian employees and is regulated by AR 380-5 and AR 380-19.

(b) Unclassified-sensitive one (US1) information which requires protection from foreign intelligence services to ensure confidentiality and involves intelligence activities, cryptologic activities related to national security.

(c) Unclassified-sensitive two (US2) information dealing with logistics, medical care, personnel management, Privacy Act data, contractual data, and "for official use only" information.

(d) Information contained in personnel and medical files, as well as similar personal information in other files, that, if disclosed to the requester would result in a clearly unwarranted invasion of personal privacy. See AR25-55, Exemption 6 of the Freedom of Information Act (FOIA).

(e) Information containing trade secrets or commercial or financial information that an agency receives from a person or organization outside the Government with the understanding that the information or record will be retained in a privileged or confidential basis in accordance with the customary handling of such records. See AR 25-55, Exemption 4 of FOIA.

(f) Information which is proprietary or source selection information. Such information is prohibited from disclosure by Section 27 of the Office of Federal Procurement Policy Act unless release is authorized by the Head of the Agency. (FAR2.104-5)

(2) Appropriate information would include:

(a) Information that is wholly within the mission and scope of the Corps of Engineers and is not restricted by the provisions of AR 360-5, Section 3-1a and 3-1b.

(b) Personal opinions, unless limited by law or regulation, are allowed with the restriction that such opinions are within the knowledge and experience of the author and will include a disclaimer stating: "The views expressed in this article are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government."

(c) Information normally made available to the public, i.e., publications and forms.

(d) Information normally released by the Public Affairs Officer (PAO) to local newspapers, television and radio stations.

(e) Unclassified photographs referenced in DA Pamphlet 25-91, Visual Information Procedures, Section 3-10. "Publication or a commercial use of this material requires release by a U.S. Army Public Affairs Officer. Credit U.S. Army." A credit line of photographer's name and office will be added with the photograph's insertion in the Internet. Section 3-12 states that still pictures are subject to the same safeguards and release requirements as other material intended for release to the press, public, or individuals.

(3) Information appropriate only within USACE:

(a) "Working papers" accumulated or created in preparation of finished documents and material should be kept within USACE until cleared for dissemination to the general public. Upon approval of the Public Affairs Office (PAO) "working paper drafts" can be released on the Internet for public dissemination if the intended purpose is to solicit comments leading to a finished product. The word "DRAFT" needs to be prominently displayed at the beginning of the document. Working paper drafts which are placed on the Internet for public comment cannot later be withheld from the public either as privileged or

under a FOIA exemption. Any claim of privelege or exemption is waived once the document has been publicly disclosed.

(b) Information about internal issues and workings of the Corps that would not serve the public interest.

APPENDIX C
Appropriate Use of the Web

1. Value of the Internet. The Web can bring to the Corps a valuable means of communicating information to the public, of passing mission related information quickly to locations around the world, and as a means of obtaining valuable information for each individual's work. Use of the internet is both endorsed and encouraged by the HQUSACE. The use of the Internet is not free. There are both direct and indirect costs. Also, there are direct and indirect benefits. Indirect costs include the costs associated with the preparation and maintenance of Web pages, the review process, and the Webmaster functions. Benefits of using the Web include a reduction of Corps-wide printing and mailing costs. It is of utmost importance that the internet be used at the Corps for mission related purposes only. Any other type of use, such as "interesting surfing for personal use," will be disciplined under the government fraud, waste and abuse policies.

2. Copyright material. Because the Internet allows for global information to be accessed in great volumes, caution must be taken when copying, downloading and publicizing information which was obtained from the internet. Proper credit must be acknowledged to the internet source on the page where the copyrighted material is presented. Software obtained from the Internet is usually either freeware, shareware, public domain or vendor-owned. Following are the guidelines for each time of software:

a. Freeware is software that may be used and distributed freely. Usually the author retains the copyright. There is no cost to this software.

b. Shareware is software that you can try before you buy. After a trial period, usually a week or two, you have to decide whether to register it or toss it. In some cases, certain features may be disabled until you register, or you may see annoying reminder messages until you register. In other cases, it

may be entirely on an honor system. The Corps abides by the honor system, and you need to have the Corps purchase any shareware you decide to keep.

c. Public domain is a convention in which an author places software that he/she has explicitly given up the right to control its use. Therefore, public domain is that repository of all works that for whatever reason are not protected by copyright. Public domain software is free for all to use without permission.

APPENDIX D
Organization of Omaha District's Web

1. Internal and external WWW. The Omaha District's WWW is set up as a combination of two distinct set of servers. The servers are distinguished by the set of customers each supports; internal or external. The internal server consists of a httpd server and a gateway (in the form of Perl scripts) that accesses freeWAIS databases but does not require a WAIS client. The external set consists of both a httpd server . The data accessible by the external world is actually a subset of the internal. There are times when the information being shared will want to stay internal, therefore, only a link to the data on the internal side will be added. There are times when the link will want to be added to the external side for public viewing, then a link will be added to both the internal and the external side. In other words, a request for an internal link will stay internal. A request for an external link will be both an internal and external linkage. The addresses for the external server is http://wwwcermo.mro.usace.army.mil. The address for the internal server is http://www.mro.usace.army.mil:85.

2. WWW organization. All Web pages will be subordinate to the Omaha District home page. The Web pages will be organized by mission or division.

APPENDIX E
Forms

1. There are two forms for use for the Omaha District's Web.

a. MRO Form 1875, World Wide Web Home Page Request, is required to initially publish information on the Web. Approval will be granted by the Public Affairs Office/Information Management Office.

b. MRO Form 1876, World Wide Web Review, is required to be signed after the page has been developed, and reviewed by it's division/office. Signature by IMO or PAO is required before pages are published and put on the Web. MRO Form 1876 will also be used when needed to periodically review the pages being served.

WORLD WIDE WEB HOME PAGE REQUEST (DM 25-1-76)		
SECTION I - REQUEST FOR WORLD WIDE WEB HOME PAGE		
DATE SUBMITTED	OFFICE SYMBOL	SUBMITTED BY
PAGEMASTER ASSIGNED TO PAGES		PHONE
HOMEPAGE NAME (Title)		
NEED FOR INTERNAL LINKS OR INTERNAL AND EXTERNAL? _____ INTERNAL _____ INTERNAL/EXTERNAL		
DESCRIBE PURPOSE OF HOME PAGE, ITS INTENDED USE, AND SUMMARY OF INFORMATION THAT WILL BE DISPLAYED		
REQUESTER'S NAME	SIGNATURE	DATE
SECTION II - REVIEW (TO BE COMPLETED BY CEMRO-IM-P)		
APPROVED BY	SIGNATURE	DATE

MRO Form 1875 (Proponent: CEMRO-IM-P) v1.01

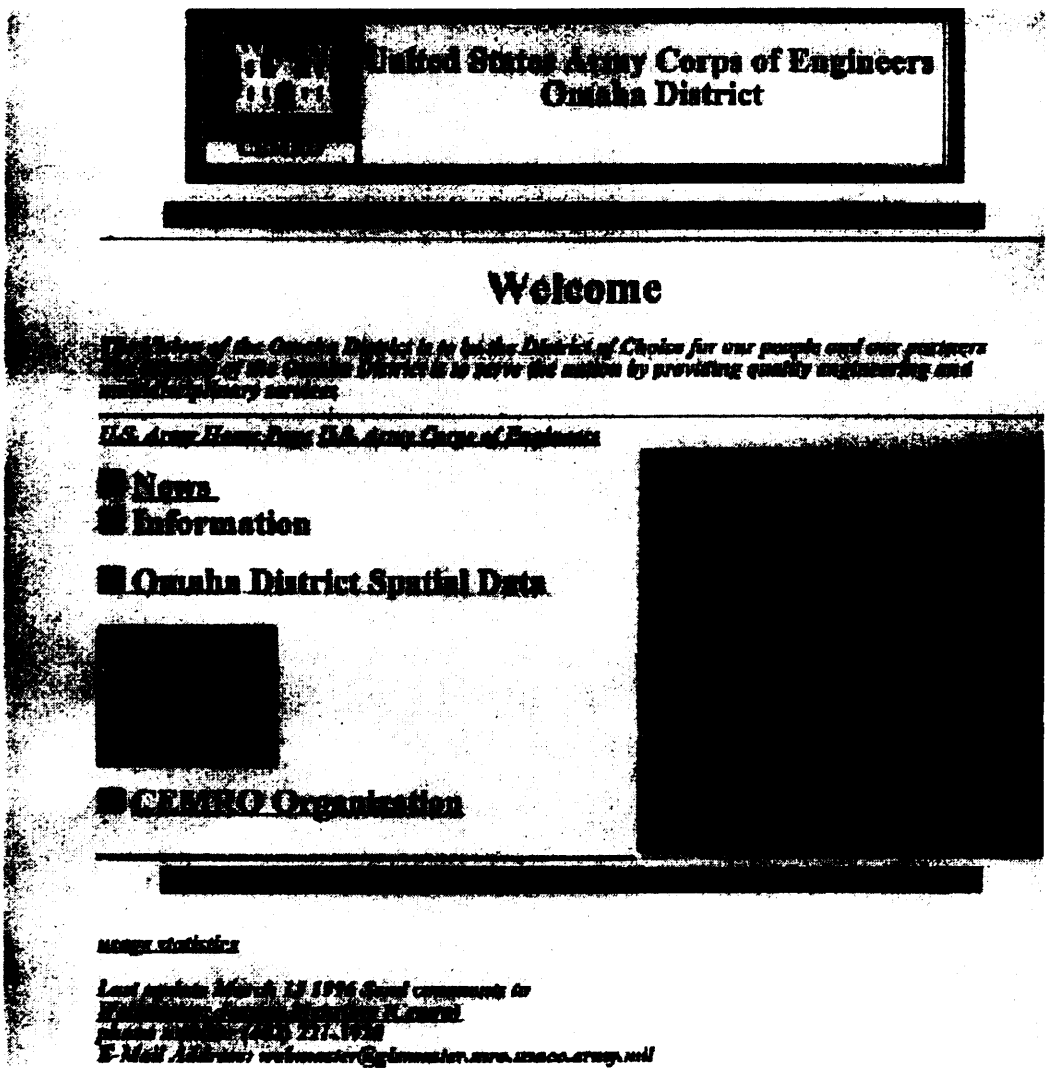
WORLD WIDE WEB REVIEW (DM 25-1-76)		
REVIEW OF YOUR HOME PAGE		
DATE SUBMITTED	OFFICE SYMBOL	SUBMITTED BY
DIVISION/OFFICE CHIEF		OFFICE SYMBOL
YOUR PAGES HAVE BEEN REVIEWED AND YOU NEED TO DO THE FOLLOWING:		
REVIEWER(S) NAME	SIGNATURE	
REVIEWER(S) NAME	SIGNATURE	
TO BE SIGNED AFTER PAGES HAVE BEEN APPROVED		
APPROVED BY	SIGNATURE	DATE

MRO Form 1876 (Proponent: CEMRO-IM-P) V1.01

APPENDIX F

Omaha District's Home Page and HTML Code

1. Home Page. The home page is constantly changing, this is only an example of the home page.



2. HTML Code.

```
<HTML>
<HEAD>
<TITLE>USACE Omaha District Welcome</TITLE>
</HEAD>
<BODY  bgcolor= "#E6E8FA">
<TABLE BORDER=10>
<TR> <TD>
<IMG SRC="/gif/lcastle.gif"><br><center><b>CEMRO</center>
</TD>
 <TD><H2><CENTER> United States Army Corps of Engineers
<br>Omaha District</CENTER></H2></TD>
</TR>
</TABLE>
<br><IMG SRC="/gif/corpbar.gif">
<HR>
<h1><CENTER><b>Welcome</b></h1>
</Center></h1>
<b> <I>The Vision of the Omaha District is to be the District of Choice for our people and
our partners<br>
The Mission of the Omaha District is to serve the nation by providing quality engineering
and multidisciplinary services<I></B>
<BR>
<HR>
<A HREF="http://www.army.mil/">
<strong>U.S. Army Home Page</strong></A>
<img  ALIGN = Right src = "/gif/ldam.gif">
<A HREF="http://www.usace.army.mil/">
<strong>U.S. Army Corps of Engineers</strong></A>
<br><br>
<H2><Img src ="/gif/redcube.gif" > <A HREF = "/html/News/news.html">  News <br>
</A>
<Img src ="/gif/redcube.gif" ><A HREF = "/html/INFO/info.html>   Information
<br></H2></A>
<H2>
<Img src ="/gif/redcube.gif" ><A HREF="/html/mrospat.html"> Omaha District Spatial
Data </H2><IMG SRC="/gif/bnd_als.gif" ALIGN="MIDDLE"></A>
<br><br>
```

```
<H2><Img src ="/gif/redcube.gif" > <A HREF ="/html/office.html"> CEMRO
Organization</H2></a>
<HR><IMG SRC="/gif/corpbar.gif"><P>
<br>

<A HREF="/html/stat-info-external/index.html">usage statistics</A> </p>
<i>Last update March 15 1996
<I>Send comments to </i><br>
<A HREF="mailto:webmaster@gismaster.mro.usace.army.mil">Webmaster: Jeanne
Mehsling (Cemro)</A><br>
 phone number (402) 221-3920<br>
E-Mail Address: webmaster@gismaster.mro.usace.army.mil</A>
```

APPENDIX G
Definitions

Browser. A software tool which runs on the user's computer. The browser provides a "window" which allows the user to see and navigate throughout the Internet. Different browsers provide different levels of functionality and ease of use. Netscape is the browser currently used at the Corps of Engineers Omaha District.

CEAP-IA Network. The collection of long haul communications lines, traffic routing devices, and other computing and communications devices that provide continuously available communication between computers located at all major Coprs of Engineers offices around the world. The CEAP-IA network also provides the connections between the Corps of Engineers and the Internet.

File Transfer Protocol (FTP). File Transfer Protocol. A standard protocol and an application that permits files to be copied from one computer to another, regardless of file format or operating system.

Graphics Interchange Format (GIF). A graphics format commonly used which compresses image and stores color information within the file.

Home Page. The main page which ties together all the components of a Web site. This is the page which is advertised and which people visit initially. The home page has links to the other pages which make up the Web site.

HTML. Web documents are typically written in HTML and are usually named with the suffix ".html." HTML documents are standard 7-bit ASCII files with formatting codes that contain information about layout (text styles, document titles, paragraphs, lists) and hyperlinks.

Hypertext Transmission Protocol (HTTP). The standard language that World Wide Web clients and servers use to communicate.

Internet. The Internet is the catch-all word used to describe the massive World Wide network of computers. The word "Internet" literally means "network of networks." In itself, the Internet is comprised of thousands of smaller regional networks scattered throughout the globe. On any given day it connects roughly 20 million users in over 50 countries. The World Wide Web is mostly used on the Internet; they do not mean the same thing. The Web refers to

a body of information - an abstract space of knowledge, while the Internet refers to the physical side of the global network, a giant mass of cables and computers.

Motion Pictures Entertainment Group (MPEG). A consortium of experts in the entertainment industry that developed the MPEG standard format for digital video and audio.

Navigation buttons. Elements within a graphic computer World Wide Web interface that allow users to review the information they have previously seen in a number of ways.

Page. (See Web Page.)

Pagemaster. Those responsible for home pages among the various divisions and offices.

QuickTime. A digital video format developed by Apple Computer that integrates synchronized video and audio with compression techniques.

Rich Text Format (RTF). A common interchange format for the exchange of electronic documents between computers.

Telnet. A program which allows users to remotely use computers across networks.

Uniform Resource Locator (URL). A standardized way of representing different documents, media, and network services on the World Wide Web. The World Wide Web uses what are called Uniform Resource Locators (URLs) to represent hypermedia links and links to network services within HTML documents. It is possible to represent nearly any file or service on the Internet with a URL. The first part of the URL (before the two slashes) specifies the method of access. The second is typically the address of the computer the data or service is located. Further parts may specify the names of files, the port to connect to, or the text to search for in a database. A URL is always a single unbroken line with no spaces. Sites that run World Wide Web servers are typically named with a www at the beginning of the network address.

Webmaster. The administrator responsible for the management and often design of a World Wide Web site.

Wide-Area Information Servers (WAIS). A service which allows users to intelligently search for information among databases distributed throughout the Internet.

Web Page. A "page" is a unit of Web material. It is an online document that is placed on a computer connected to the Internet, and is usually accessible to everyone on the Internet. Access to home pages can be restricted to computers with specific Internet addresses, a capability used to create a "local" home page containing links to documents that aren't of interest to the public, and readable only by those employed within the immediate organization. A "page" can consist of any combination of text, graphics, sound and video among other things. A page can be of almost any size but by convention and for usability a page is normally from one to ten standard letter size pages of information. Too much information on a Web page can make it difficult for the reader to digest.

Web Server. A computer running Web server software and attached to the Internet via high-speed dedicated telecommunications links.

Web Site. A set of related Web pages usually created by a single organization. A Web site may serve multiple purposes and have multiple target audiences. For example, CEMRO's Web site contains information important to and pertaining to it's District.

X bitmap (XBM). A standard two-color bitmap image format supported by the X Windows system.